

What is claimed is:

1. A bottle support plate for use in a rotary capping machine used to apply caps onto the upper threaded neck of one or more containers having a non-fully circular flange, as said containers are moved along a generally circular path by a star wheel, said bottle support plate connected to said star wheel and including a pocket that at least partially supports and at least partially mates with the flange of said container to at least partially inhibit rotation of said container during the threading of a cap on said upper threaded neck of said container.
2. The bottle support plate as defined in claim 1, wherein said bottle support plate includes a support ledge that at least partially engages a bottom surface of said flange of said container.
3. The bottle support plate as defined in claim 2, wherein said support ledge at least partially counters a downward force applied to the upper threaded neck of said container during the threading of a cap on said upper threaded neck of said container.
4. The bottle support plate as defined in claim 1, wherein said support ledge includes a semi-circular shaped front surface.
5. The bottle support plate as defined in claim 1, wherein said support ledge includes an anti-rotation wall extending upwardly from said support ledge, said anti-rotation wall having a non-fully circular face adapted to at least partially mate with at least a portion of a periphery of the flange of said container.
6. The bottle support plate as defined in claim 5, wherein said anti-rotation wall includes at least one substantially straight surface.

7. The bottle support plate as defined in claim 6, wherein said anti-rotation wall includes a plurality of straight surfaces.

8. The bottle support plate as defined in claim 7, wherein said plurality of straight surfaces adapted to mate with at least a portion of a periphery of the flange of said container having a shape of a pentagon.

9. The bottle support plate as defined in claim 7, wherein said plurality of straight surfaces adapted to mate with at least a portion of a periphery of the flange of said container having a shape of a heptagon.

10. The bottle support plate as defined in claim 7, wherein said plurality of straight surfaces adapted to mate with at least a portion of a periphery of the flange of said container having a shape of a nonagon.

11. The bottle support plate as defined in claim 5, wherein said anti-rotation wall includes at least one protrusion.

12. The bottle support plate as defined in claim 11, wherein said at least one protrusion is adapted to mate with at least a portion of a periphery of the flange of said container having a V-shaped notch.

13. The bottle support plate as defined in claim 11, wherein said at least one protrusion is adapted to mate with at least a portion of a periphery of the flange of said container having a notch with at least one arcuate surface.

14. The bottle support plate as defined in claim 5, wherein said anti-rotation wall forms

an angle with said support ledge of about 90°.

15. The bottle support plate as defined in claim 5, wherein said anti-rotation wall forms an angle with said support ledge that is greater than 90°.

16. The bottle support plate as defined in claim 5, including a recessed portion that terminates at said anti-rotation wall.

17. The bottle support plate as defined in claim 16, including an arcuate surface between said recessed portion and said anti-rotation wall.

18. The bottle support plate as defined in claim 1, wherein said bottle support plate is removably connected to said star wheel.

19. The bottle support plate as defined in claim 18, including at least one opening adapted to connect said bottle support plate to said star wheel.

20. An improved rotatable star wheel for a bottling machine for filling and/or capping containers having an upper threaded neck and a non-fully circular flange, said star wheel for moving said containers through said machine, said star wheel comprising at least one bottle support plate that includes a pocket that at least partially supports and at least partially mates with the flange of said container to at least partially inhibit rotation of said container during the threading of a cap on said upper threaded neck of said container.

21. An improved container guide system for a bottling machine for filling and/or capping containers having an upper threaded neck and a non-fully circular flange, said container guide system retaining said containers in said machine during movement through said machine, said

5 container guide system comprising a rotatable star wheel to move said containers through said machine; at least one bottle support plate that includes a pocket that at least partially supports and at least partially mates with the flange of said container to at least partially inhibit rotation of said container during the threading of a cap on said upper threaded neck of said container; body guide suspended from said star wheel to maintain the sidewall of said containers in position during rotation of said star wheel, rear guide located radially outwardly from said star wheel to retain said containers
10 within said pocket of said bottle support plate during rotation.

22. A method of inhibiting rotation of a container of the type having an upper threaded neck and a non-fully circular flange as a capping head screws a cap onto said neck, said method comprising: providing a bottle support plate with a pocket that at least partially supports and at least partially mates with the flange of said container to at least partially inhibit rotation of said container
5 during the threading of a cap on said upper threaded neck of said container, moving said flange at least partially into said pocket to cause said flange to at least partially mate with at least a portion of said pocket to inhibit rotation of said container with said capping head.

23. The method as defined in claim 22, including the step of moving said container in a preselected path.

24. In a capping machine for applying a threaded cap onto the threaded neck of a container having a generally cylindrical body, and a non-fully circular flange below said threaded neck, said machine including a turret rotatable about a machine axis and carrying a plurality of capping heads, each of which rotate a cap about a capping axis to apply said cap to said neck as said
5 capping head and container move in unison about said machine axis; a capper star wheel rotatable about said machine axis and having a plurality of bottle support plates at least partially engaging said containers immediately below said flanges and lower stabilizers with recesses to engage a container at said body thereof; and, a fixed guide plate with an arcuate guide surface concentric with said

- 10 machine axis and radially spaced from said star wheel at a position generally diametrically opposite to said bottle support plates of said star wheel whereby containers carried by said star wheel are capped as they are moved along said guide surface of said fixed guide plate, the improvement comprising: each of said bottle support plates including a pocket that at least partially supports and at least partially mates with said flange of said container to at least partially inhibit rotation of said container during the threading of said cap on said neck of said container.